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Montana forests have unusual soil

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MONTANA FORESTS HAVE UNUSUAL SOIL

MISSOULA--

Normally grassland soils are darker and more fertile than the light soils in forests. However, University of Montana researchers have found dark soils in both certain conifer forests and their neighboring grasslands in southwestern Montana.

Through a grant from the U.S. Forest Service Northern Region Fire Lab in Missoula, Thomas J. Nimlos, professor of forestry at the University of Montana, and Mark E. Bakeman, a forestry graduate student, have been studying why and how such a situation exists in high, cool, dry sites in Montana.

Nimlos explained that the research is important because, due to the differences in fertility, the land management practices for dark and light soil areas contrast sharply across their boundary, known as an ecotone.

One explanation for dark soils in forests, Nimlos said, is that the dark soils formed under grass but recently the ecotone shifted and forests invaded the grassland. Questions remain on why and how the shift occurred.

At this stage of the research project, Nimlos and Bakeman are studying phytoliths, small glass-like deposits from plant tissue left in the soil when the plant decomposes.

Nimlos said phytoliths resist weathering, retaining shapes unique to certain groups of vegetation. Identifying the phytoliths of species enables the scientists to determine the ecotones of previous times.

Nimlos said the collected data so far indicate that there has been a recent invasion of trees into some grasslands in their study area, which came about since fire control was introduced. The ecotone had not shifted earlier for perhaps thousands of years, leaving open the question of why soils in older parts of the forests are dark.

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